

WHAT IS CLAIMED IS:

1. A hinge system for a knee brace having upper and lower struts each defining an end portion disposed toward a knee joint, the hinge system comprising:

    a flexion-extension regulating device having an upper member and a lower member attached to each other in a manner defining a gap therebetween for accommodating the end portion of the upper strut;

    an elongated main slot formed through the upper and lower members and providing a fixed boundary for prescribing a range of motion; and

    a motion limiting member connected to the lower member and further being connectable to the end portion of the lower strut, the motion limiting member having a motion limiter disposed within the main slot which is caused to move therealong when the upper and lower struts pivot about the knee joint wherein confinement of the motion limiter within the fixed boundary ensures that the knee joint flexes and extends within the prescribed range of motion.

2. The hinge system of Claim 1 wherein the knee brace is a post-surgical knee brace.

3. The hinge system of Claim 1 wherein the regulating device and the motion limiting member are each fabricated from metal.

4. The hinge system of Claim 1 wherein the upper and

lower members are unitarily formed to each other.

5. The hinge system of Claim 1 wherein the upper member comprises an upper body having a generally arcuate configuration.

6. The hinge system of Claim 1 wherein the lower member comprises a lower body having a configuration sized and configured to substantially correspond with the end portion of the upper strut.

7. The hinge system of Claim 1 wherein the elongated main slot is curved.

8. The hinge system of Claim 1 wherein the upper member comprises an elongated upper slot and the lower member comprises an elongated lower slot, the upper and lower slots being substantially aligned with each other to form the elongated main slot.

9. The hinge system of Claim 1 wherein the prescribed range of motion is between about 0 to about 140 degrees.

10. The hinge system of Claim 1 wherein the motion limiting member has a motion limiting body with a first motion limiting surface, the motion limiter extending outwardly in a generally perpendicular relationship with respect to the first motion limiting surface.

11. The hinge system of Claim 10 wherein the lower member has a lower body with a second lower surface, the first motion limiting surface being connected to the second

lower surface in a manner as to align the motion limiter within the elongated main slot.

12. The hinge system of Claim 10 wherein the motion limiter is a flange fabricated from metal.

13. The hinge system of Claim 1 further comprising at least one stop member removably disposed within the elongated main slot for adjusting the prescribed range of motion.

14. The hinge system of Claim 13 wherein the at least one stop member is fabricated from rubber so as to be disposed within the elongated main slot through frictional fit.

15. The hinge system of Claim 1 further comprising an elongated arm member sized and configured to be disposed between the end portions of the upper and lower struts.

16. The hinge system of Claim 12 wherein the elongated arm member is fabricated from metal.

17. A knee brace for regulating flexion and extension of a knee joint, the knee brace comprising:

an upper pair of struts and a lower pair of struts, the upper pair and the lower pair being placeable in an inverted, relative orientation above and below the knee joint with end portions of the upper pair and the lower pair being disposed laterally on opposite sides of the knee joint; and

a pair of hinge systems disposed adjacent the end

portions of the upper pair and lower pair to pivot the upper pair and lower pair about the knee joint, each of the hinge systems comprising:

a flexion-extension regulating device engaged to the respective end portion of the upper strut, the device having an elongated main slot formed therethrough and providing a fixed boundary for prescribing a range of motion; and  
a motion limiting member engaged to the device and the respective end portion of the lower strut, the motion limiting member having a motion limiter disposed within the main slot which is caused to move therealong when the respective upper and lower struts pivot about the knee joint wherein confinement of the motion limiter within the fixed boundary ensures that the knee joint flexes and extends within the prescribed range of motion.

18. The knee brace of Claim 17 wherein the knee brace is a post-surgical knee brace.

19. The knee brace of Claim 17 wherein the prescribed range of motion is between about 0 to about 140 degrees.

20. The knee brace of Claim 17 wherein each of the hinge systems further comprise at least one stop member removably disposed within the elongated main slot for adjusting the prescribed range of motion.

21. The knee brace of Claim 17 wherein each of the hinge systems further comprise an elongated arm member sized and configured to be disposed between the end portions of the respective upper and lower struts.